Exploring Student Perceptions of Speaking English as a Second Language When Completing the Critical Thinking in Communication Science and Disorders Assessment

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EXPLORING STUDENT PERCEPTIONS OF SPEAKING ENGLISH AS A SECOND LANGUAGE WHEN COMPLETING THE CRITICAL THINKING IN COMMUNICATION SCIENCE AND DISORDERS ASSESSMENT

By

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Introduction

Critical thinking has been a topic of interest for many years for researchers. It is common knowledge that critical thinking is important in many occupations, but exactly how important is this type of cognition? And how do differences, such as learning English as a second language, affect testing of critical thinking in English?

Critical Thinking

Critical thinking is an abstract term, and can be difficult to define, Abrami and colleagues (2008) said that critical thinking is the ability to engage in purposeful, self-regulatory judgment (Abrami et al., 2008). However, they did not define purpose or judgment. It is a highly sought after, and essential skill in any field. Critical thinkers are set up to be highly functional in their endeavors.

Critical thinking requires six things: interpretation, analysis, evaluation, inference, explanation and self-regulation (Abrami et al., 2008). Facione (1990) defined these terms as follows: Interpretation requires understanding of the topic at hand, and the ability to decode complexities. Analysis requires one to scrutinize and dissect aspects of the given information. Inference demands strong and able cognition. Being able to infer is a skill that requires one to think divergently and delve into hypotheticals. Critical thinking then inquires for explanation of a topic, to which persisting and previous knowledge will need to be utilized. Lastly, critical thinking requires self-regulation, which would mean managing and synchronizing reactions to the information at hand.

Occupational Critical Thinking

Why is critical thinking so important in all occupations? Stein states that, as a result of the increasingly technological and information-driven world that is emerging, critical thinking
has become an essential part of educational programs and workplaces. These principles apply to
STEM professions similarly. Critical thinking is acclaimed as integral for National Science
Standards and the National Educational Technology Standards (Stein et al., 2007). The list of
occupations that require critical thinking is near endless. According to Yuan et al. (2014), critical
thinking in the medical field means that medical professionals are able to think inquisitively,
have integrity, be well-informed, open-minded, confident, and intuitive. These authors integrated
perspectives from many researchers when they defined critical thinking. Most professionals
agree that those in the medical field must apply, synthesize, and evaluate information generated
by observation to be successful practitioners (2014).

Critical Thinking in Communication Science and Disorders

Good clinical practice and evidence-based practice in speech-language pathology and
audiology require use of critical thinking skills (Bernstein-Ratner, 2006; Finn et al., 2016;
Kahmi, 1984; 2011). One foundational practice of speech pathologists and audiologists is being
able to critically review and analyze research that is relevant to their clinical dilemmas (Finn,
2011; Kamhi 2011). Critical thinking skills are an integral and necessary element of knowledge
that speech-language pathology supervisors are expected to aid their student clinicians in gaining
(ASHA, 2008). This ability underlies and determines the way that these professionals evaluate
and treat clients (Morris et al., 2018). Evidence based practice means that the clinician uses
evidence from the professional literature, her clinical experience, and the client’s wants and
needs when creating a treatment program (Dollaghan, 2007). Determining effective programs
requires critical thinking skills and dispositions (Bernstein-Ratner, 2006; Finn, 2011). Programs
for clinical training in communication disorders, speech-language pathology (SLP), and
audiology have embraced teaching students to use “evidence-based practice” as a tool for more
Critical thinking in the field of communication science is so important because practitioners need to make quick and informed decisions about clients, their diagnoses, and care. Kahmi (2011) stated that “the uncertainty that leads practitioners to question their beliefs and assumptions must be balanced by the confidence and certainty that they can help their patients…” Most practitioners appear to err on the side of certainty, adopting a confident mindset in clinical practice”. Therefore, undergraduate and graduate level education programs focus so much on the ability to think outside the box in clinical settings. He also said that, “many clinical disciplines have the challenge of integrating what the science says is effective and what practitioners are already doing” (Kahmi, 2011). Elliott and Hennessey (2001) indicated that students improved their critical thinking (CT) skills as a result of their clinical training and not from direct training of these skills. Therefore evidence-based practice is directly and inversely related to critical thinking in communication science and disorders. Being able to integrate research, previous knowledge, and experience into current clinical decisions is essential for speech pathologists and audiologists.

Assessing critical thinking

For years, researchers have worked to define and measure critical thinking. This is such a challenge because critical thinking is hard to define, and therefore, even harder to test. One example of this is the Critical thinking Assessment Test, or the CAT. This general knowledge critical thinking test uses short answer responses to assess critical thinking because subjective assessments can be afflicted by reliability and scoring issues (Stein et al. 2007). Stein and colleagues (2007) stated that “the CAT instrument is one of the few interdisciplinary assessment
instruments available that also provides an opportunity for faculty development”. Possin (2008) reviewed the value of another critical thinking assessment, the *Collegiate Learning Assessment* (CLA). Students have forty-five, and then thirty-five minutes to respond to two different prompts, and then ninety minutes to write an argumentative proposal. The CLA responses are then scored by a computer. This assessment has become a prominent writing OA test (Possin, 2008). There are also multiple-choice critical thinking assessments, for example, the Watson-Glaser Critical Thinking Appraisal Test, which has questions distributed among five categories: inference, assumptions, deduction, interpretation, and evaluation (Possin, 2008).

Furthermore, there are general knowledge assessments of critical thinking that have been developed over the years, but none have been developed yet that specifically pertain to the field of communication science and disorders. Possin (2008) stated that different CT assessment tools focus on different CT skills (when they focus on CT skills at all). He stressed the importance of matching the assessment test with the CT skills studied in the curriculum to avoid getting inaccurate results (Possin 2008). It is because of this, that it is so crucial that there are specified critical thinking assessments. Content-specific critical thinking tests allow for the best assessment of individuals critical thinking skills in their discipline. Yuan, Liao, Wang, & Chou (2014) called into question generic-skills-critical thinking tests and their relationship to success in clinical programs. These researchers detailed that clinically oriented students will more than likely have better responses to clinical questions that relate to their field of study. Similarly, when Renaud and Murray (2008) compared and analyzed the results from subject-specific critical thinking tests, and generic critical thinking tests, they found that larger pretest to posttest improvements resulted from critical thinking assessments that contained questions that related to the course in which the assessments were given than assessments that had concentrated on
general topics. Their findings heavily support the notion that content specific critical thinking tests better measures of one’s ability to think critically in one’s chosen field. The authors of many critical thinking tests indicate the high correlations between their instruments and other indicators of general thinking skills, such as SAT results (Ennis & Weir, 1985; Facione, 1990; Halpern, 2010; Stein & Haynes, 2011). The authors of other critical thinking assessments have stated that if students do not perceive that prompts and items in the assessment pertain to their interests, they may not exhibit the same amount of focused effort that they would have if the prompts did pique their interest (Macpherson & Owen, 2010).

The Critical Thinking in Communication Science and Disorders Assessment

To assess the way that those in the field of communication science and disorders critically think, the Critical Thinking in Communication Sciences and Disorders (CTCSD) was developed by Morris and colleagues (Morris et al., 2018; in press). Prior to this assessment being created, there had not been a CSD-specific critical thinking test (Morris et al., 2018). This is a content-specific critical thinking assessment that includes, causal reasoning, deductive reasoning, and the adequacy and/or quality of data presented to the students (Morris, Gorham-Rowan, Robinson, & Scholz, 2018). Morris and his colleagues developed the CTCSD to assess very similar critical thinking skills as the CAT assessment, developed by Berry Stein and colleagues. The CAT holds high reliability and validity and therefore holds more promise in assisting the designers of this test when formulating the prompts. Comparisons between the scores on the CTCSD and two general knowledge CT assessments, the CAT and the Ennis-Weir revealed that the CTCSD significantly correlated with both (Morris et al., 2018; in press). Assessments of this sort can help CSD faculty measure CT improvements of CSD students and help those students become more effective clinicians.
Learning English as a Second Language & The CTCSD

To establish cultural fairness for the CTCSD, how bilinguals, particularly those who learn English after age 10, perform on the assessment needs to be determined. When bilingual individuals are assessed in their second language, the differences in the depth of their understanding of the second language becomes more apparent and can sometimes be misconstrued as a lack of knowledge (Cummins, 1981). A study found that “learners who begin as late as 10–12 years old reach similar levels of ultimate attainment as native bilinguals. After that age, we find a continuous decline in attainment as a function of age of first exposure, with no evidence that this relationship ceases after a particular age” (cf. Johnson & Newport, 1989; Pulvermüller & Schumann, 1994). Another study suggests that native-like attainment is achievable, being that the first exposure is prior to the age of seventeen (Hartshorne, Tenenbaum, & Pinker, 2018). However, even with proficiency in both languages, research shows that bilinguals still exhibit dominance in one language, therefore affecting code switching patterns, and determining the language of “mental calculations” and lexical memory representation (Amengual, 2018). Another study shows that although the working memory and cognitive load ability of both monolinguals and bilinguals was similar, bilinguals did fall short on the category of lexical retrieval (Bialystok, Craik, & Luk, 2009). Because the CTCSD is a written assessment with lengthier word problems, someone who learned English after age 10 might struggle more to answer the prompts of the assessment than a person who learned English as their native language. This is largely because the ability to learn language may distinctively decline after childhood. Resnik (2021) stated that multilinguals’, “internal and external language use deviates from monolinguals’ but it does so because of their uniqueness, and this should not be misinterpreted as failure or deficient language use”. Because of processing differences in an L2,
or a second language (Filipovic & Hawkins, 2019), to establish the CTCSD as an equitable critical thinking measure, a need exists to establish that the test items are fair for those in CSD who learned English after age 10.

**Purpose**

The purpose of the proposed study is to explore student perceptions of learning English after age 10 when completing the Critical Thinking in Communication Science and Disorders Assessment (Morris et al., 2018; in press). If following student reactions and responses to the prompts, the questions seem to have bias against this specific student condition, then the wording of the prompts will be altered to accommodate more students. Similarly, if these students indicate that they can respond to the prompts well, but need more time, then manuals for the CTCSD will be adapted to indicate the longer time needs of these students. Further validation of the CTCSD across a variety of sites can demonstrate that the CTCSD can serve as a specific content assessment of CT skills among CSD students.

**Methods**

**Participants**

The participants of this study will include 2 graduate students currently enrolled in the Florida State University Communication Science and Disorders program, whose first language was not English. They will have learned English after the age of 10 years. The first student is a second-year distance learning graduate student whose first language is Spanish. The second student is a first-year distance learning graduate student whose first language is Arabic.

**Materials**

The materials used in this study will be the *Critical Thinking in Communication Science and Disorders* (CTCSD).
Procedure

The researcher will solicit participants by sending out an email indicating the purpose of the study and the anticipated time requirements for students. Students who express interest in the study will meet with the researcher to discuss scheduling the two experimental sessions and for signing the consent form. Finally, the researcher will schedule a two-hour face-to-face or Zoom session with each participant to talk through each of the prompts of the CTCSD using cognitive interviewing techniques.

The study will be a single-subject qualitative design. Each participant will complete the CTCSD with the researcher engaging the participant in a cognitive interview while completing the CTCSD using the cognitive interviewing techniques. Three different types of cognitive interview question techniques will be used: 1. When reading each prompt aloud, the participants will be asked their ideas concerning the prompt and what they comprehend the prompt to mean. They will then orally respond to the prompt (Collins, 2003; Drennan, 2003; Hofmeyer et al., 2015; Hurst et al., 2015). 2. Next the interviewer will ask the participants to restate the prompt in their own words. This restatement will be followed by the interviewer asking the definitions of words that appear to be uncertain or ambiguous to the participants (Collins, 2003; Drennan, 2003; Hofmeyer et al., 2015). Finally, 3. The interviewer will watch the participants' nonverbal cues for signs of emotional responses (Hofmeyer et al., 2015; Hurst et al., 2015). Follow-up questions and statements specific to each participant will complete the interview process.

Analysis
The interviewer’s comments and the session transcripts were first subjected to thematic analysis. As part of this analysis, participant responses to the study question were distilled into coded categories. A process of open coding, axial coding, and continuous comparison with the data was used initially. As described by Braun and Clarke, these procedures were how this analysis began. Because there was not a preconceived hypothesis, an inductive method creating categories was used: coding categories that arise from the participant responses (Blair & Bric, 2010). However, through discussions, various comments from the participants could be categorized using each prompt, because initial themes were not emerging. Each prompt was identified as problematic or difficult by the participant. We ultimately used a priori codes, the question prompts, and conducted a content analysis to determine which comments and significant quotes belonged under each identified prompt. Given the beginning questions for the interviews, it was plausible that the coding categories occurred in two categories: semantic and participant response (Blair & Brick, 2010). The semantic categories may include issues of comprehension, clarity, subtlety/sensitivity, and instructions/explanations (Buers, Triemstra, Bloemendal, Zwijnenberg, Hendriks, & Delnoij, 2014). The participant response task categories may include issues of participant knowledge, prompt construct, and assumptions underlying the prompt (Buers et al., 2014).

Results

Following the analysis of coded categories from the two participants’ interviews, it was observed that the participants had adequate understanding of most of the prompts. Prompts were coded into categories “ease with prompt” and “difficulty with prompt”. Comments about the prompts were coded for analysis, while answers to the prompts were not coded out, as we were not looking at the performance on the prompts but rather feedback about them. Participant 1
exhibited ease with prompts 1, 2, 3, 5, 9, and 10, and difficulty with 4, 6, and 8. Participant 2 exhibited ease with prompts 1, 3, 4, 5, 7, 8, 9, and 10, and difficulty with 2 and 6. Once a participant was redirected or the question was rephrased or explained by the facilitator, participants indicated they fully understood each one. Given that this project sought to identify aspects that may be difficult for students, in what follows, we will describe the perspectives of students on these prompts. Quotations from participants will be used to elucidate the findings.

**Prompt 2**

Participant 1 had difficulties answering the first part of the prompt, which led her to some difficulties answering the second part, which led her to be confused. The participant stated, “it says whether you agree or not, and I still haven't made a decision whether I agree or not”. Once it was explained that during regular testing, a test taker would have agreed with the Speech Language Pathologist in the prompt, and then gone to answer the second part, the participant correctly interpreted the question. The participant stated that all of the words in the prompt were clear.

**Prompt 4**

Participant 1 additionally had difficulty with the word “interpretation” in prompt 4. Following a rephrasing of the question by the facilitator, the participant interpreted the prompt correctly.

**Prompt 6**

Participant 2 had specific troubles with the word “bouts” in prompt 6, once the definition was explained, the question was interpreted correctly. Similarly, participant 1 did not know the word “bouts” in prompt 6. Through context the participant was able to correctly interpret the question.
Prompt 8

Participant 1 had difficulties interpreting the figure in prompt 8, specifically in regard to finding the average score in the figure. No redirection or rephrasing was needed, the participant took a few additional moments to interpret the graph on their own, and correctly interpreted the question.

Discussion

The purpose of this study was to explore students’ perceptions of how learning English after age 10 influenced their perception of the Critical Thinking in Communication Science and Disorders Assessment (Morris et al., 2018; in press). We found that most prompts were understood, but the few that needed to be rephrased were understood after a short amount of time. Cultural fairness is important, especially in the field of communication science and disorders. It needs to be made a point for standardized exams to show an accurate picture of knowledge, and that unfortunately can get blurred when there is a language barrier. Resnik (2021) stated that multilinguals’, “internal and external language use deviates from monolinguals’ but it does so because of their uniqueness, and this should not be misinterpreted as failure or deficient language use”. When using the CTCSD, test administrators should consider the potential differences in needs of people who speak 2 or more languages taking the CTCSD.

There were a few limitations of this study. Our study sought to gain an in-depth view of this issue qualitatively with two students. Thus, our results cannot be generalized. Results of this study must be taken within the specific context described herein. Due to time constraints, convenience sampling was used to recruit participants. These participants were both students of the Florida State University School of Communication Science and Disorders Department, and were easily accessible to the test administrator and author. Additionally, a limitation was the
inexperience of the interviewer. Cognitive interviews, such as the one used in our study, require
some level of expertise to do accurately, and to draw the most accurate results from. Because this
was the first time the interviewer had completed a cognitive interview of this sort, there were
some portions of the interview that we feel we were not able to draw accurate conclusions about.
On the basis of replication, more than two participants should be used, as well as participants
from different university programs. A more experienced interviewer should be used.

Because there was no preconceived hypothesis, we will take these results and respond by
making changes accordingly to the CTCSD and its administration. Participants who are taking
the CTCSD in their second language should be given extra time. This will give them extra time
to read and respond to the prompts. Perspectives of these bilingual students need to be taken into
consideration when administering the CTCSD. Additionally, those administering and proctoring
the CTCSD will be trained on how to approach administering the test to those whose first
language is not English.

During the exit phase of the interview, participant 1 stated, “I will say I had noticed that I
read slower than other people. It takes me more time to read, and obviously to write.” This
highlights what needs to be done, for the assessment to be fair, and equitable for the students in
communication science, taking the CTCSD.

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References


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Appendix A

CTCSD Questions and Scoring Guide

Question 1
A new modality of treatment for oropharyngeal dysphagia recently was added to the accepted dysphagia treatments by insurance companies. Speech language pathologists (SLPs) working in acute care hospitals and rehabilitation facilities have observed that 85% of their patients with dysphagia who received this treatment as part of their post-stroke interventions exhibited improved swallow. These SLPs say that this treatment is an effective tool for improving swallow function among post-stroke people with dysphagia.

Based on what is written above, do you agree with the SLPs? Why or why not? Provide at least two reasons to support your answer.

Score 0 Reasons provided did not include observable phenomena or agree with the SLPs.
1 Provided one or two reasons in support of the answer to question #1 but did not include the anecdotal nature of the observations, lack of published evidence on the treatment or lack of a control group.
2 Provided two reasons in support of the answer to question #1 including one of these explanations: the anecdotal nature of the observations, lack of published evidence on the treatment or lack of a control group.
3 Provided two reasons in support of the answer to question #1 including two of these explanations: the anecdotal nature of the observations, lack of published evidence on the treatment or lack of a control group.

Question 2
Whether you agree with the SLPs or not, what additional information would need to be present to better evaluate the SLP’s conclusions about this treatment?

Score 0 Any information that does not come from data to support the conclusion. Off topic responses.
1 Information that comes from a data-based study of patients with dysphagia who have used the new treatment modality or other treatments.
2 Information that comes from a controlled data-based study of patients of patients with dysphagia who have used the new treatment modality and matched controls who have not.

Question 3
"When working with a seven-year-old girl who stutters you decided to have her slow her breathing by doing a slow, deliberate breathing activity. After that activity you noticed that her speech was more fluent. You plan to incorporate the breathing activity into your therapy plan
for this client but realize that you need to determine if this activity results in a pattern of improvement or was a coincidence.

Provide two ways that you could determine the effectiveness of the breathing activity.

Score 0 Any method to determine the treatment effectiveness that does not use observable data.

1 Methods to determine the treatment effectiveness that include at least one of the following: an A/B (include breathing activity/ withdraw breathing activity) single subject design over several treatment sessions; administering the breathing activity in the same manner to a group of children who stutter; or setting up a study with children who stutter and including the breathing activity in the treatment of some of the children and not including it in the treatment of the others.

2 Methods to determine the treatment effectiveness that include two of the following: an A/B (include breathing activity/ withdraw breathing activity) single subject design over several treatment sessions; administering the breathing activity in the same manner to a group of children who stutter; or setting up a study with children who stutter and including the breathing activity in the treatment of some of the children and not including it in the treatment of the others.

Question 4
"A treatment called Melodic Intonation Therapy (MIT) is used to increase fluent speech among people who experience aphasia, a language problem that can occur after a stroke. An SLP has used this treatment method with a client who exhibited aphasia. She began using MIT with him two months after his stroke. Over the past nine months the client has increased his functional vocabulary and the phrase length of his utterances.

From the information above, provide two separate interpretations of what can be said about the effectiveness of Melodic Intonation Therapy as a treatment for aphasia?

Score 0 Interpretations that generalize the results from this one case to all people who have aphasia.

1 At least one interpretation that includes one of the following: the limited information available from a single case study, the limited conclusions that can be made from a single case study, or that the current results may have occurred over time without MIT.

2 The interpretations include two of the following: the limited information available from a single case study, the limited conclusions that can be made from a single case study, or that the current results may have occurred over time without MIT.

Question 5
"During voice evaluations several physical measurements are made. For example, when a person completes a voice evaluation, the SLP will report maximum durations of several attempts of sustained /s/ and /a/, such as:

/s/  15 s, 17 s, 16 s, 14 s, and 14 s
/a/  14 s, 16 s, 15 s, 18 s, and 17 s

The SLP will also report average speaking and sustained vowel fundamental frequencies that would be averaged across several speaking and vowel examples, such as:

Speaking  115 Hz, 118 Hz, 121 Hz, 117 Hz, and 114 Hz
Sustained vowel  123 Hz, 130 Hz, 119 Hz, 130 Hz, and 125 Hz

The data from vowel utterances would include fundamental frequency range:

112-726 Hz (33 semitones), 92-736 Hz (36 semitones), 100-596 Hz (31 semitones), 95-645 Hz (33 semitones), and 88-732 Hz (37 semitones)

Data from the vowel utterances also include measures of vowel stability:

Jitter  0.8%, 0.5%, 0.7%, 0.8%, and 0.5%
Shimmer  3.7%, 3.9%, 3.7%, 3.6%, and 3.8%
Noise-to-harmonics ratio  0.12 dB, 0.11 dB, 0.13 dB, 0.12 dB, and 0.11 dB

Answer the following questions using the data provided in the narrative above.

5a. What was this person’s maximum phonation time?  __________

Score  
0  Any answer other than 18 s.
1  18 s

5b. What was this person's average speaking fundamental frequency?  __________

Score  
0  An answer other than 117 Hz that did not use the correct set of numbers.
1  An answer other than 117 Hz when there is evidence that the student used the correct set of numbers.
2  117 Hz
Question 6
"A nine-year-old child is on your caseload as a public school SLP. He swims for a team based at a city swimming pool along with his older sisters who are in different swim team age groups than he is. He has a history of repeated bouts of external otitis that are treated topically and seldom cause him to be absent from school. His reading skills are below grade level, and he exhibits poor skills at pairing letters of the alphabet to speech sounds. He also exhibits some speech sound errors, particularly substituting plosives for fricatives. The classroom teacher wants the boy to stop swimming for his ears to clear so that he can hear his sounds better.

Do you agree with the teacher? _________________

Score
0 Yes
1 No

Provide two alternative explanations of the child’s speech and literacy behaviors. Indicate the relationship between each alternative explanation and the provided information."

Score 0 An interpretation without supporting statements or one that focuses on the boy’s hearing.
1 Two interpretations supported by statements that reflect something other than swimming and external otitis or language/literacy issues.
2 Two interpretations with one of them supported by addressing the language and/or literacy issues in the narrative.
3 Two interpretations with both of them supported by addressing the language and/or literacy issues in the narrative.

[sum the two scores so that the total is out of 4]

Question 7
"This prompt and the following one both are based on the figure below. Some researchers were interested in improving science literacy and knowledge. They devised a program to teach these skills and evaluated their program. At the end of the one semester program, they had the students respond to three open-ended questions. The researchers reported an examination of students' written responses on the three open-ended questions allowed us to examine the quantity (i.e., number of words and sentences) and quality (i.e., spelling and use of multisyllabic words) of writing. The following Figure (Connor, Kaya, Luck, Toste, Canto, Rice, Tani, & Underwood, 2010) presents a comparison of students' scores at pretest and posttest on these four literacy skills. Students wrote an average of 17.55 more words in their test responses following the intervention and spelled an average of 10% more words correctly."
What does the figure indicate about the student responses?

**Score**  
0 An answer that attributes the increased performance of the students to a specific cause, such as the training program.  
1 An answer that reports the depicted data without attribution of changes in the data to a specific cause such as the program.

**Question 8**
The researchers believe that the program helped the students learn better; however, others challenged this interpretation of the data depicted in the figure.

Provide three reasons that someone might disagree with the researchers.

**Score**  
0 Reasons that indicate the program was the basis for the students’ improved performance.  
1 Reasons provided without supporting statements.  
2 One reason provided with supporting statements.  
3 Two reasons provided with supporting statements.  

Reasons can include lack of a control group, student maturation, or instructors teaching the test content.

**Question 9**
J. M. is a 45-year-old male who has had a moderate hearing loss since birth. He wears binaural in-the-ear hearing aids that have provided him with good hearing and speech reception. Approximately a year ago he began to experience a reduction in his sound detection so that now he has a moderate to severe hearing loss. His audiologist and ENT agree that his hearing has been stable for the past three months. Everyone agrees that J. M. needs to consider the best course forward for his hearing.

J. M. works as an I.T. consultant for the regional office of a major bank. This work includes mostly interacting with people via texting and email with intermittent electronic and face-to-face meetings. During these meetings he needs to be able to quickly process the technical needs of the others and to provide reasonable timelines for meeting those needs. At home he lives with his wife and two children aged 13 and 17 years. Since he was a college student he has
bicycled for exercise and enjoyment. With his family he frequently goes on long road rides and with his friends he also does off-road bicycle riding. Recently, he and his friends have been talking about training for a triathlon in which they will all compete. J. M. has been a leader in these discussions and is ready to begin running and swimming.

Using the supplemental materials to understand the options, mark which hearing device will be the one best choice for J. M.

<table>
<thead>
<tr>
<th>Assitive Devices for the Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Brain Stem Stimulator</td>
</tr>
<tr>
<td>Cochlear Implant</td>
</tr>
<tr>
<td>Hearing Aid</td>
</tr>
</tbody>
</table>

Score: 0 Other choices

1 Hearing aid

Question 10
State your reason for your selection of the hearing device in the previous prompt.

Score: 0 Provides support for other choices

1 Provides support for hearing aids but does not mention the severity of his hearing loss, job requirements, or his lifestyle choices.

2 Provides support that includes one of the following: the severity of his hearing loss, job requirements, or his lifestyle choices.

3 Provides support that includes two of the following: the severity of his hearing loss, job requirements, or his lifestyle choices.

4 Provides support that includes all the following: the severity of his hearing loss, job requirements, or his lifestyle choices.